REMARKS

Claims 6, 7, 10 and 11 have been indicated to be directed to allowable subject matter.

In the last amendment, responsive to the requirement for restriction, applicant elected Group I, claims 1-11 and 30, drawn to an implant. Claims 12-29 and 31-32 have now been cancelled.

New claims have been added.

Claims 1-11 and 30 were rejected as indefinite.

As the claims have been amended to remedy the stated bases of rejection, withdrawal of the rejection is solicited.

Claims 1-5, 8, 9, and 30 stand rejected as anticipated by LAYROLLE et al. 6,207,218.

There is a basic difference between the present invention in that the claims require titanium and another element as an ion moiety, e.g., a calcium ion moiety, but LAYROLLE discloses a titanium oxide layer incorporating a calcium phosphate and not a phosphor ion moiety or a calcium ion moiety.

LAYROLLE fairly discloses the addition of calcium phosphate into the titanium oxide layer, partly to mimic the hard tissues like bone, cartilage, tooth enamel, and dentine. The bone minerals consists of sub-micrometer, poorly-crystalline carbonated calcium phosphate crystals with hydroxyapatite structure. There is a difference between synthetic hydroxyapatite with a Ca/P ratio of 1.67 and the bone mineral

Ca/P ratio (col 1, lines 19 to 42). Thus LAYROLLE deals with the problem of adding a carbonated calcium phosphate to a titanium oxide layer present on an implant.

The present invention relates to non-calcium phosphate binding of calcium to titanium oxide (application p.1, lines 12 to 22). Further the present invention is characterized in that the titanium oxide/calcium is present in a double layer, wherein the top layer exhibits an open structure and the inner layer is a compact barrier structure.

The present invention thus discloses anodic incorporations of calcium, phosphor or sulphur separately but not together, and claimed that "said element is chosen from the group consisting of calcium, phosphor or sulphur" (in line 3-4 of claim 1) and "the incorporation of either calcium, phosphorous or sulphur in the double layer" (para 0016). Furthermore, the present invention clearly exemplified the chemical composition of the Ca, P or S implant separately as detected by XPS analysis (Figure 7; and in the line 9-11 of para 0031) and by AES (Figure 8; and para 0032).

The present invention defined the surface chemistry of the Ca implant of the present invention that Ca is present in calcium titanate such as CaTiO3 (line 6-7, phrase 48), which proves completely different chemical composition of said implants from "carbonated calcium phosphate", "hydroxyapatite" and "bone

substitute materials" in LAYROLLE (col. 1, lines 19-42, col. 2, lines 33 to 51, and col. 3 lines 24 to 44).

Thus there is no disclosure whatsoever in LAYROLLE of using a single calcium ion compound, but rather to use calcium and phosphate to produce a hydroxyapatite mimicking compound, the carbonated calcium phosphate.

In the present invention calcium, phosphorous or sulphur, in ion form compounds, is baked into the titanium oxide layer. That resulted structure is recited.

The Official Action in particular cites col. 2, lines 33 to 51, and col. 3 lines 24 to 44 of LAYROLLE to show disclosure of double-layer coatings, wherein the lower one is compact and the upper one is porous.

There is no indication that said primary layer is compact or porous. It is not considered in any way.

The invention of LAYROLLE discloses that the substrate coated is porous (cf. col. 4, lines 17 to 27). Thus the conclusion may very well be that all prior art substrates should have an inner porous surface, independent of being the substrate as such or a coated substrate further coated. In any case the indication is reversed to the present invention calling for a compact inner layer, and a porous upper layer.

"The examiner interpreted the upper porous layer as the layer of titanium oxide and the lower compact barrier as the layer of calcium and phosphorus ions (see col. 2 lines 33-51; and

col. 3, lines 24-44)" [line 4-6, page 4 of Office Action Summary]. These recitations have been clarified to avoid this problem.

As clearly demonstrated in the AES ions depth profiles of Figure 8, the present invention defines the upper porous layer as the layer of the more calcium ions or phosphorus ions and the lower compact barrier as the layer of titanium oxide. (Please, see the description in details in para 0040: In the zone 1 (Figure 2), .. the oxide layer obtained contained lower concentrations of addictive (L in the AES depth profiles of figure 8) than the layers obtained in zones 2 and 3,…This is clearly seen in SEM and TEM micrograph (a in Fig 2 and L in Fig 4, respectively).

In summary, it is clear that LAYROLLE does not anticipate the present invention. The claims have been amended to clarify these differences.

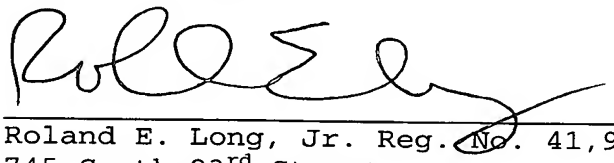
Reconsideration of the present claims 1-5, 8, 9 and 30, as well as the new claims, is respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any

overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON



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